

Neterion Xframe® II

10 Gigabit Ethernet PCI-X 2.0 Server & Storage Adapter

Xframe II is the industry's first 10 Gigabit Ethernet adapter taking advantage of the PCI-X 2.0 bus architecture. It doubles the data rate delivered by the earlier bus standard (PCI-X 1.0) and unleashes the full line speed of 10 Gb/sec. It allows data center managers faced with exponentially increasing bandwidth needs to boost their network's performance while preserving their investment in Ethernet.

Capitalizing on Ethernet, the proven industry-standard for 30 years, the Xframe II 10 Gigabit Ethernet Adapter allows end-users to preserve their existing environment: operating systems, network administration tools, core cabling, personnel training, etc. Xframe II dramatically increases network performance, eliminates bottlenecks resulting from the explosion of data volumes, frees-up server and user-level bandwidth, boosts application response and slashes data backup times.

Xframe II is fully compliant with the PCI-X 2.0 Mode II specification and the IEEE 802.3ae 10 Gigabit Ethernet standard. The Xframe II host system interface is a 64-bit, 133 MHz (DDR) capable PCI-X bus. The Xframe network interface is a 10 Gigabit Ethernet link, using standardized PMD (Physical Media Dependent) devices to ensure ready interoperability.

All Xframe products include full IPv4 and IPv6 support, and comprehensive stateless offloads that preserve the integrity of current TCP/IP implementations without "breaking the stack." Xframe drivers are available for all major Operating Systems, including Microsoft Windows, Linux (included in the Kernel), Hewlett-Packard's HP-UX, IBM's AIX, Sun's Solaris and SGI's Irix.

All Neterion products are designed to be fully software forward-compatible with future releases.

Test results from leading OEM evaluation labs on the features and benefits of Xframe II, compared to 1 Gigabit Ethernet:

- Up to 10x higher throughput
- 50% lower latency
- TCP processing overhead reduced by 40%
- Up to 10-fold reduction in cabling expense



Xframe II Features and Benefits

Xframe II is based on a sophisticated state machine architecture with built-in HA/RAS features that provide the highest performance and reliability available.

- Extensive Protocol Offloads and Assists maximize host efficiencies by reducing host processing loads, and optimizing bus utilization
- "Deep-Split Bus Transaction Capacity" provides full utilization of PCI-X bus while achieving the industry's lowest latency
- Flexible Interrupt Features include INTA, PCI 2.2 Message Signaled Interrupt (MSI), and next generation MSI-X
- True QoS (Quality of Service) support for up to 8 levels in both directions, allowing traffic to be classified, prioritized, and queued at line rate
- 32 MB of on-board memory drastically reduces performance-degrading link-layer flow control
- Turn-key driver support for all major Operating Systems and server architectures (Custom driver development is available)
- ECC (SEC/DED) protection for all PCI-X Mode II bus transactions and on-board data and control structures
- "Carrier Grade" environmental characteristics for power, thermal, and noise
- Modular design permits various connectivity options, including Short Reach optical (SR), Long Reach optical (LR), and CX-4 (copper)

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Specifications

Advanced Features

- TCP Checksum Offload (Tx and Rx; IPv4 and IPv6)
- TCP Large Send Offload support for segments up to 64 KB (plus headers)
- TCP Large Receive Offload
- UDP Checksum Offload (Tx and Rx; IPv4 and IPv6)
- UDP "Checksum Over Fragment" Offload (IPv4 and IPv6) for transactions up to 64 KB
- UDP Large Send Offload (IP fragmentation) for transactions up to 64 KB
- Advanced packet classification and prioritization features
- IPv4 Header Checksum Offload (Tx and Rx)
- IP Differentiated Services support
- Advanced Flow Control features (RED – Random Early Detection)
- 32 MB Rx Frame Buffer (host-configurable into prioritized queues)
- Support for up to 32 concurrent PCI-X split transactions
- Adaptive Interrupt Coalescence
- PCI Physical Pin (INTA) Interrupt support
- PCI Message Signaled Interrupt (MSI) support for up to 32 unique interrupts
- PCI Extended Message Interrupt (MSI-X) support for up to 64 unique interrupts
- Extended-MSI (XMSI) support for up to 64 unique interrupts
- End-to-end SEC/DED ECC protection for all PCI-X Mode II bus transactions on-board control and data structures
- Redundant-State-Variable State Machine Error Protection for all on-board state machines

Standards Support

- PCI-X 2.0 Mode II and PCI 2.3 compliant 64 bit, 266 MHz (133 MHz DDR) host interface
- DIX/802.3 FCS Offload for Tx and Rx frames
- 802.3ad "Slow Protocol" frame support

- 802.3ad Link Aggregation support
- 802.1Q VLAN tag support (Tx append and Rx strip)
- 802.1D (ex. 802.1p) QoS support (Rx frame steering across up to 8 queues)
- Jumbo Frame support (up to 9600 Bytes)
- 802.3X Pause Frame support (in hardware)
- Unicast/Multicast Rx frame filtering for up to 256 address/mask pairs
- Microsoft Receive Side Scaling Support
- Wake-on-LAN and ACPI power management support

Network Management

64-bit MAC Statistics include:

- MIB Statistics
- MIB2 Statistics
- MIB2 Extension
- RMON Statistics
- RMON 2 Statistics
- Automated DMA transfer of all Statistics to host memory

Physical Dimensions and Environmental

- Bus Type – PCI-X
- Bus Width – 64 bit
- Bus Speed (MHz) – 266 (133 DDR)
- Typical Power Consumption: 15 Watts
- Operating Temperature: 0 to 65° C
- Operating Humidity: 5 to 95%
- Length: 6.6" long (Half Length)
- Height: 4.2" tall (Full Height)

| Physical Media | | | |
|----------------|-------------------|--------------------|--------|
| Type | Optical: 850nm SR | Optical: 1310nm LR | Copper |
| Distance | 300m | 10km | 15m |
| Connector | LC | SC | CX-4 |



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